

REMARKS

Claims 1-4 and 20 are pending. New claim 20 has been added and non-elected claims 5-13 have been canceled without prejudice or disclaimer.

Claims 1-4 were rejected under 35 USC §103(a) as being unpatentable over Hikita et al. in view of Kobayashi et al. This rejection is respectfully traversed.

Claim 1 is directed to a method of mounting an electronic component on a substrate. The claimed method includes the limitations of melting a conductive bonding material on the terminal pad and thereafter melting the solid support (after melting the conductive bonding material) so as to move down the electronic component toward the substrate, thereby contacting the terminal conductor with the conductive material melting on the corresponding terminal pad. The claimed method allows for reliable prevention of contact between the conductive bonding material on the terminal pad and the terminal conductor when the conductive bonding material is melted. Furthermore, the claimed method allows the conductive bonding material to be exposed so that if bubbles are generated, the bubbles are allowed to escape from the melted conductive bonding material, thereby leading to improvement in strength in bonding between the substrate and the electronic component.

The Office Action argues that it would have been obvious to modify the teachings of Hikita et al. based on Kobayashi et al. such that a conductive bonding material is melted before the material is connected in order to improve the strength of bonding between the electronic

component and the substrate. It is respectfully submitted that one of ordinary skill in the art would not have combined the references in the manner suggested by the Examiner. Furthermore, even if the references could be combined, the combination would not suggest the claimed invention.

One of ordinary skill in the art would not have modified Hikita et al. in the manner suggested by the Examiner as such a modification would destroy the function of Hikita et al. Hikita et al. discloses anisotropic conductive film 24 interposed between the IC main chip 14 and the IC sub-chip 16 as shown in Fig. 7 so that the IC sub-chip 16 is depressed against the IC main chip 14 in a manner compressing and deforming the anisotropic conductive film 24. The IC sub-chip 16 is mounted on the IC main chip 14 by curing and setting the anisotropic conductive film 24 by applying heating or the like while keeping the depressing state as it is. The depressing force of the IC sub-chip 16 against the IC main chip 14 causes both bumps 14 c and 16b to be forced into the conductive film 24. Due to this, the conductive particles mixed in the conductive film 24 are sandwiched between the respective bumps 14c and 16b so that these bumps 14c and 16b are put into electrical connection through the conductive particles. It is apparent from the description that the anisotropic conductive film 24 and the bumps 14c and 16b are kept in a solid state.

Accordingly, if one were to modify the teachings of Hikita et al. as suggested by the Examiner, the intended function of Hikita et al. is destroyed. That is, the bumps would not be

forced into the conductive film 24. Thus, for at least this reason, the rejection should be withdrawn.

Claim 1 requires melting the conductive bonding material on the terminal pad prior to melting on the solid support. The Examiner acknowledges that Hikita et al. fails to disclose these limitations. Kobayashi et al. is applied as allegedly rendering this feature obvious. However, the Examiner focuses on the processes shown in Figs. 1 and 2. Kobayashi et al. discloses the process for removing an oxide film from the solder bump 5 after melting of the solder bump 5. As described above, the IC sub-chip 16 of Hikita et al. is depressed against the IC main chip 14 while the anisotropic conductive film 24 is disposed between the main chip 14 and the IC sub-chip 16. In order to establish electric connection between the bumps 14c and 16b, the anisotropic conductive film 24 is deformed. As such, the bumps 14c and 16b should have strength to deform the anisotropic conductive film 24. If these bumps are melted, however, the bumps cannot deform the anisotropic conductive film 24 whereby electric connection between the bumps is not established.

The combination of references would not suggest melting a conductive bonding material on the terminal pad and thereafter melting the solid support so as to move down the electronic component towards the substrate, thereby contacting the terminal conductor with the conductive bonding material melting on the corresponding terminal pad. Therefore, there would have been no motivation to combine the references in the manner proposed by the Examiner.

Amendment
Serial No. 10/073,106
Attorney Docket No. 020154

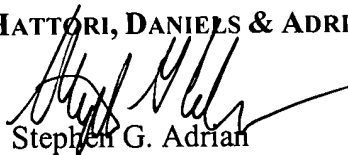
For at least the foregoing reasons, the claimed invention distinguishes over the cited art and defines patentable subject matter. Favorable reconsideration is earnestly solicited.

Should the Examiner deem that any further action by applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone applicants' undersigned attorney.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP



Stephen G. Adrian

Attorney for Applicants
Registration No. 32,878
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

SGA/arf